

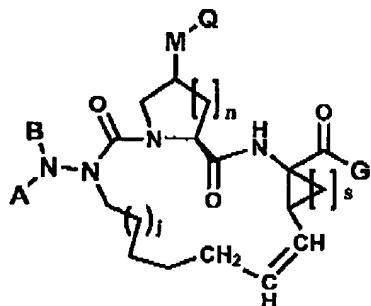
Application No. 10/613,206
 Amendment dated October 24, 2005
 Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously presented) A compound of Formula I:



(I)

wherein

A is selected from:

- (a) hydrogen;
- (b) -(C=O)-O-R₁, where R₁ is selected from:
 - 1. hydrogen,
 - 2. C₁-C₆ alkyl,
 - 3. C₃-C₁₂ cycloalkyl,
 - 4. substituted C₃-C₁₂ cycloalkyl,
 - 5. aryl,
 - 6. substituted aryl,
 - 7. heteroaryl,
 - 8. substituted heteroaryl,
 - 9. heterocycloalkyl,
 - 10. substituted heterocycloalkyl, or
 - 11. -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl,
heterocycloalkyl, or substituted heterocycloalkyl;

(c) $-(C=O)-R_2$, where R_2 is selected from:

1. $-R_1$, where R_1 is as previously defined,
2. alkylamino,
3. dialkyl amino,
4. arylamino, or
5. diarylamino;

(d) $-C(=O)-NH-R_2$, where R_2 is as previously defined;

(e) $-C(=S)-NH-R_2$, where R_2 is as previously defined;

(f) $-S(O)_2-R_2$, where R_2 is as previously defined;

B is hydrogen or C₁–C₆ alkyl;

G is

- (a) $-OH$;
- (b) $-O-(C_{1-}C_{12}\text{ alkyl})$;
- (c) $-NH-R_2$, where R_2 is as previously defined;
- (d) $-NHS(O)_2-R_1$, where R_1 as previously defined;
- (e) $-(C=O)-R_2$, where R_2 as previously defined;
- (f) $-(C=O)-O-R_1$, where R_1 as previously defined; or
- (g) $-(C=O)-NH-R_2$, where R_2 as previously defined;

M is absent or selected from:

- (a) $-O-$;
- (b) $-S-$;
- (c) $-NH-$; or
- (d) $-NR_1-$, wherein R_1 is previously defined;

Q is selected from:

- (a) aryl;
- (b) substituted aryl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

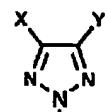
Docket No.: 61558(50530)

- (c) heteroaryl;
- (d) substituted heteroaryl;
- (e) heterocycloalkyl; or
- (f) substituted heterocycloalkyl;

j = 0, 1, 2, 3, or 4;

n = 0, 1, or 2; and

s = 0, 1, or 2.



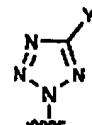
2. (Previously presented) A compound of formula I, wherein M is absent and Q is ,
wherein X and Y are each independently selected from:

- a) -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) -C₂-C₆ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) -C₂-C₆ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

or in the alternative, X and Y are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;



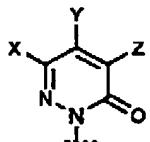
3. (Previously presented) A compound of formula I, wherein M is absent and Q is
wherein Y is selected from:

- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

4. (Previously presented) A compound of formula I, wherein M is absent and Q is



wherein X, Y, and Z are each independently selected from:

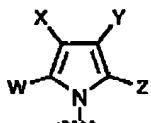
- a) -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) -C₂-C₆ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) -C₂-C₆ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, X and Y or Y and Z are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

5. (Previously presented) A compound of formula I, wherein M is absent and Q is



wherein W, X, Y, and Z are each independently selected from:

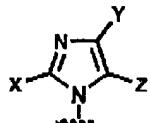
- a) -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) -C₂-C₆ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) -C₂-C₆ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, W and X, X and Y, or Y and Z are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

6. (Previously presented) A compound of formula I, wherein M is absent and Q is



wherein X, Y, and Z are each independently selected from:

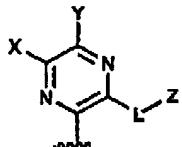
- a) -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) -C₂-C₆ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) -C₂-C₆ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, Y and Z are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

7. (Previously presented) A compound of formula I, wherein M is -O- and Q is



wherein

L is M, where M is as previously defined;

X, Y, and Z are each independently selected from:

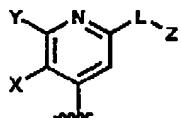
- a) -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) -C₂-C₆ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) -C₂-C₆ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, X and Y are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

8. (Previously presented) A compound of formula I, wherein M is $-O-$ and Q is



wherein

L is M, where M is as previously defined;

X, Y, and Z are each independently selected from:

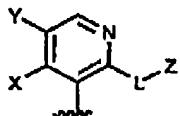
- a) $-C_1-C_6$ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) $-C_2-C_6$ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) $-C_2-C_6$ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, X and Y are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl; or

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

9. (Previously presented) A compound of formula I, wherein M is -O- and Q is



wherein

L is M, where M is as previously defined;

X, Y, and Z are each independently selected from:

- a) -C₁-C₆ alkyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- b) -C₂-C₆ alkenyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- c) -C₂-C₆ alkynyl containing 0, 1, 2, or 3 heteroatoms selected from O, S, or N, optionally substituted with one or more substituent selected from halogen, aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl;
- d) aryl;
- e) substituted aryl;
- f) heteroaryl;
- g) substituted heteroaryl;
- h) heterocycloalkyl; or
- i) substituted heterocycloalkyl;

or in the alternative, X and Y are taken together with the carbons to which they are attached to for a cyclic moiety selected from: aryl, substituted aryl, heteroaryl, substituted heteroaryl, heterocycloalkyl, or substituted heterocycloalkyl.

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

10. (Previously presented) A compound according to claim 1 represented by formula I selected from:

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M = -O-, Q = hydrogen, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M = -O-, Q = -S(O)₂CH₃, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M = -O-, Q = 2-thiophenyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 2-thiophenyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OEt, M is absent, Q = 4,5-diphenyltriazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4,5-di-thiophenyltriazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4-(thiophen-3-yl)-5-(p-methoxyphenyl)triazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4-(n-butyl)-5-phenyltriazol-2-yl, and j = n = s = 1;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(3-methoxyphenyl)tetrazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(4-pyridyl)tetrazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(3,4-dichlorophenyl)tetrazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 5-(3-bromo-4-methoxy-phenyl)tetrazol-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 4-(4-fluoro-phenyl)-6-phenyl-1H-pyridazin-3-on-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M is absent, Q = 6-phenyl-5-piperidin-1-yl-1H-pyridazin-3-on-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-2-phenyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-2-thiazolyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-2-thiophenyl-quinolin-4-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-3-(thiophen-2-yl)-1H-quinoxalin-2-yl, and j = n = s = 1;

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 6-Methoxy-3-(thiophen-2-yl)-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-3-[2-(thiophen-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 6-Methoxy-3-[2-(thiophen-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1;

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-Methoxy-3-[2-(pyridin-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1; or

Compound of formula I, wherein A = Boc, B = hydrogen, G = OH, M = -O-, Q = 7-methoxy-3-[2-(pyridin-2-yl)vinyl]-1H-quinoxalin-2-yl, and j = n = s = 1.

11.(Previously presented) A pharmaceutical composition comprising an anti-hepatitis C virally effective amount of a compound according to claim 1, or a pharmaceutically acceptable salt, ester, or prodrug thereof, in combination with a pharmaceutically acceptable carrier or excipient.

12.(Previously presented) A method of treating a hepatitis C viral infection in a mammal, comprising administering to the mammal an anti-hepatitis C virally effective amount of a pharmaceutical composition according to claim 11.

13.(Previously presented) A method of inhibiting the replication of hepatitis C virus, the method comprising supplying a hepatitis C viral NS3 protease inhibitory amount of the pharmaceutical composition of claim 11.

Application No. 10/613,206
Amendment dated October 24, 2005
Reply to Office Action of June 22, 2005

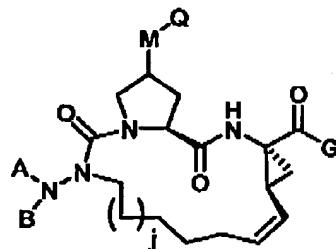
Docket No.: 61558(50530)

14. (Previously presented) The method of claim 13 further comprising administering concurrently an additional anti-hepatitis C virus agent.

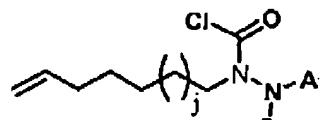
15. (Previously presented) The method of claim 14, wherein said additional anti-hepatitis C virus agent is selected from the group consisting of: α -interferon, β -interferon, ribavirin, and adamantine.

16. (Previously presented) The method of claim 14, wherein said additional anti-hepatitis C virus agent is an inhibitor of another target in the hepatitis C virus life cycle, which is selected from the group consisting of: helicase, polymerase, metalloprotease, and IRES.

17. (Previously presented) A process of making compounds of formula I:



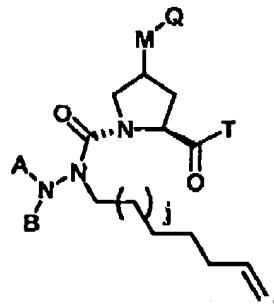
wherein A, B, G, M, Q, j, n, and s are as defined in claim 1, comprising the steps of:



(a) reacting a compound of formula (A): $\text{---CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{N}(\text{B})\text{---A}$, wherein A, B, and j is as defined in claim 1 with a hydroxyproline ethyl ester derivative of formula (B): in the presence of a base to form a compound of formula (C):

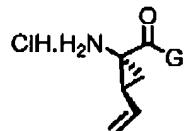
Application No. 10/613,206
 Amendment dated October 24, 2005
 Reply to Office Action of June 22, 2005

Docket No.: 61558(50530)

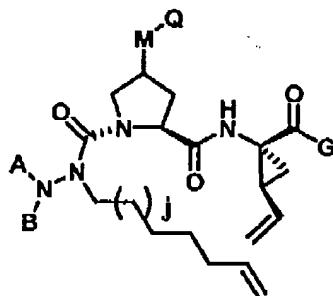


wherein A, B, and j are as defined in claim 1 and T is selected from OH, OMe, or OEt;

(b) reacting a compound of formula B with a compound of formula (D):



, wherein G is as defined in claim 1, under standard amide formation conditions to form a compound of formula (E):



, wherein A, B, G, M, Q, and j are as defined in claim 1; and

reacting compound of formula E with a Ruthenium-based catalyst.